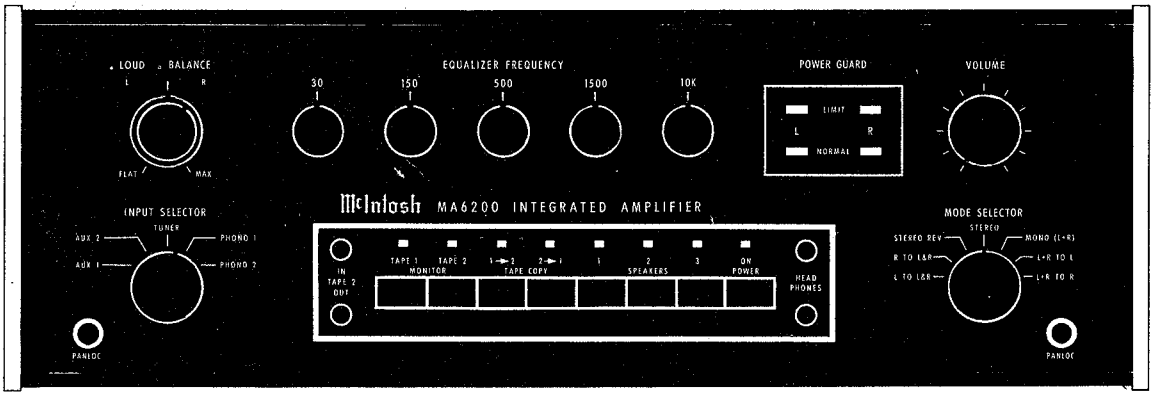
McIntosh

MA 6200

PREAMP–AMPLIFIER



SERVICE INFORMATION

STARTING WITH SERIAL NO. BX1001

McINTOSH LABORATORY INC. BINGHAMTON, NEW YORK 13903

039-086

MA6200

PERFORMANCE LIMITS

POWER OUTPUT

100 Watts minimum sine wave continuous average power output, per channel, both channels operating into 4 ohms, 20Hz to 20kHz with no more than .05% total Harmonic Distortion.

75 Watts minimum sine wave continuous average power output, per channel, both channels operating into 8 ohms, 20Hz to 20kHz with no more than .05% total Harmonic Distortion.

OUTPUT LOAD IMPEDANCE

4 ohms, 8 ohms

RATED POWER BAND

20Hz to 20kHz

TOTAL HARMONIC DISTORTION

.05% maximum at any power level from 250mW to rated power per channel, 20Hz to 20kHz, both channels operating.

INTERMODULATION DISTORTION

.05% maximum at any power level from 250mW to rated power per channel with both channels operating for any combination of frequencies 20Hz to 20kHz.

FREQUENCY RESPONSE

20Hz to 20kHz +0 -0.5dB at rated power

HUM AND NOISE

Power Amp: 105dBA, 100dB unweighted, below rated output

Tape & Aux Input: 100dBA, 95dB unweighted, below rated output

Phono Input: 85dBA, 80dB unweighted, below 10mV input.

DAMPING FACTOR

Greater than 30

INPUT SENSITIVITY AND IMPEDANCE

Power Amp:	2.5 Volts	22,000 ohms
Tape & Aux:	250m Volts	100,000 ohms
Phono:	2m Volts	47,000 ohms, 100pF

TAPE OUTPUT

Aux. Tape:	250mV with rated input
Phono:	250mV with rated input

PROGRAM EQUALIZER

± 12dB at 30, 150, 500, 1,500, and 10,000 Hz

POWER REQUIREMENT

120 Volts, 50/60 Hz, 0.5 to 5 Amperes

MECHANICAL INFORMATION

SIZE: Front Panel measures 16 inches wide (40.6 cm) by 5-7.16 inches high (13.8 cm). Chassis measures 14-3/4 inches wide (37.5 cm) by 4-13/16 inches high (12.2 cm) by 13 inches deep (33.0 cm), including PANLOC shelf and back panel connectors. Knob clearance required is 1-1/4 inches (3.2 cm) in front of the mounting panel.

FRONT PANEL & TRIM

Front panel	045-388
Front panel glass	016-171
End Cap	018-160
Pushbutton, black	017-230
Pushbutton Red	017-244
Equalizer Knob	090-171
Balance Knob	090-187
Loudness Knob	090-186
Volume Knob	090-170
Input Selector Knob	090-156
Mode Selector Knob	090-156

MISCELLANEOUS

Fuseholder	178-106
AC Power Cord	170-119
Shipping Carton	
Hardware Package	045-142
Audio Cable	170-015
Shorting Phono Plug	127-021
Jumper	015-010

SCHEMATIC NOTES

1. Printed circuit board assemblies are outlined on the schematics by dotted lines. The circled numbers on the dotted lines correspond to the numbers on the printed circuit board layouts.

2. The heavy lines on the schematics denote the primary signal path.

3. The terminal numbering of rotary switches is for reference only.

4. A dot on the rotor of a rotary switch indicates that there is an electrical connection between the front and rear rotor section.

5. Unless otherwise specified: Resistance values are in ohms, 1/4 watt, and 5% tolerance. Capacitance values smaller than 1 are in microfarads (μF); capacitance values greater than 1 are in picofarads (pF).

6. All voltages indicated on the schematics are measured under the following conditions:

   Use of an 11 megohm input impedance VTVM. — All voltages ± 10% with respect to ground.

   No signal at input terminals. — AC input at 120 volts, 50/60 Hz.

   Voltages not specified are "0" volts.

7. Front panel controls at:

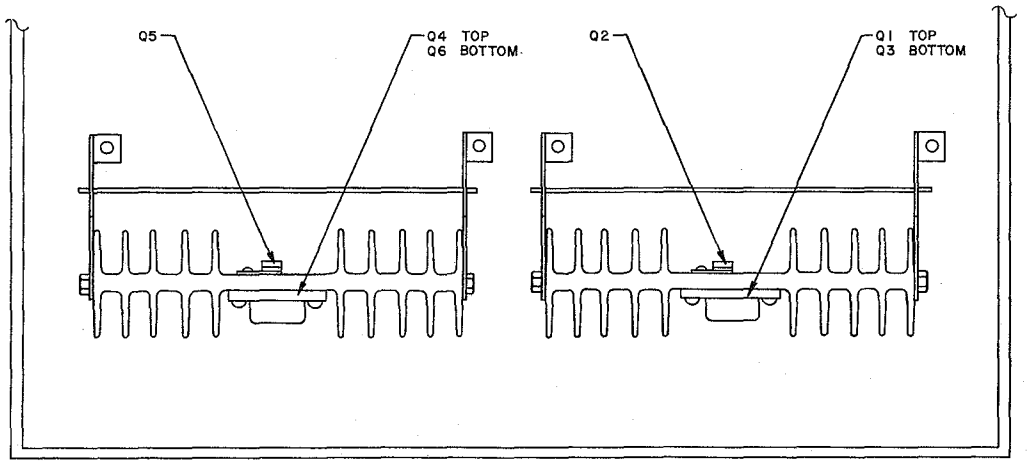
Mode Selector	Stereo	Loudness	ccw
Speaker switches	Out	Tape Monitors	Out
Volume control	Min	Tape 1→2	Out
Balance control	Middle	Tape 2←1	Out
Tone controls	Flat		
Input selector	Aux 1		

8. To adjust output stage bias operate the MA 6200 at 120 volts line input with no input signal. Measure the AC line input power (approximately 40 watts) or current (approximately .3A). The bias potentiometer R851 and R852 are located on the power output PC boards.

   a. Turn both bias potentiometers full counterclockwise.

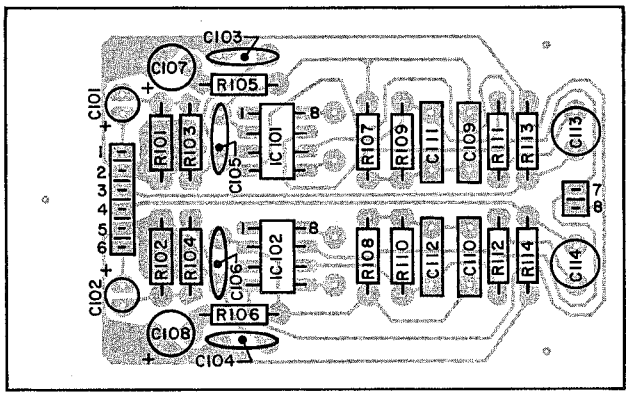
   b. Rotate bias adjustment clockwaise to the point where the line input power or current begins to increase then back off slightly to the point where the line input just reaches its lowest value.

   c. Repeat step b for each channel independently.

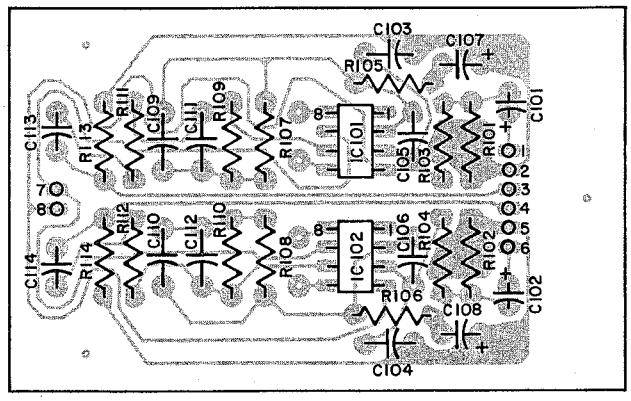


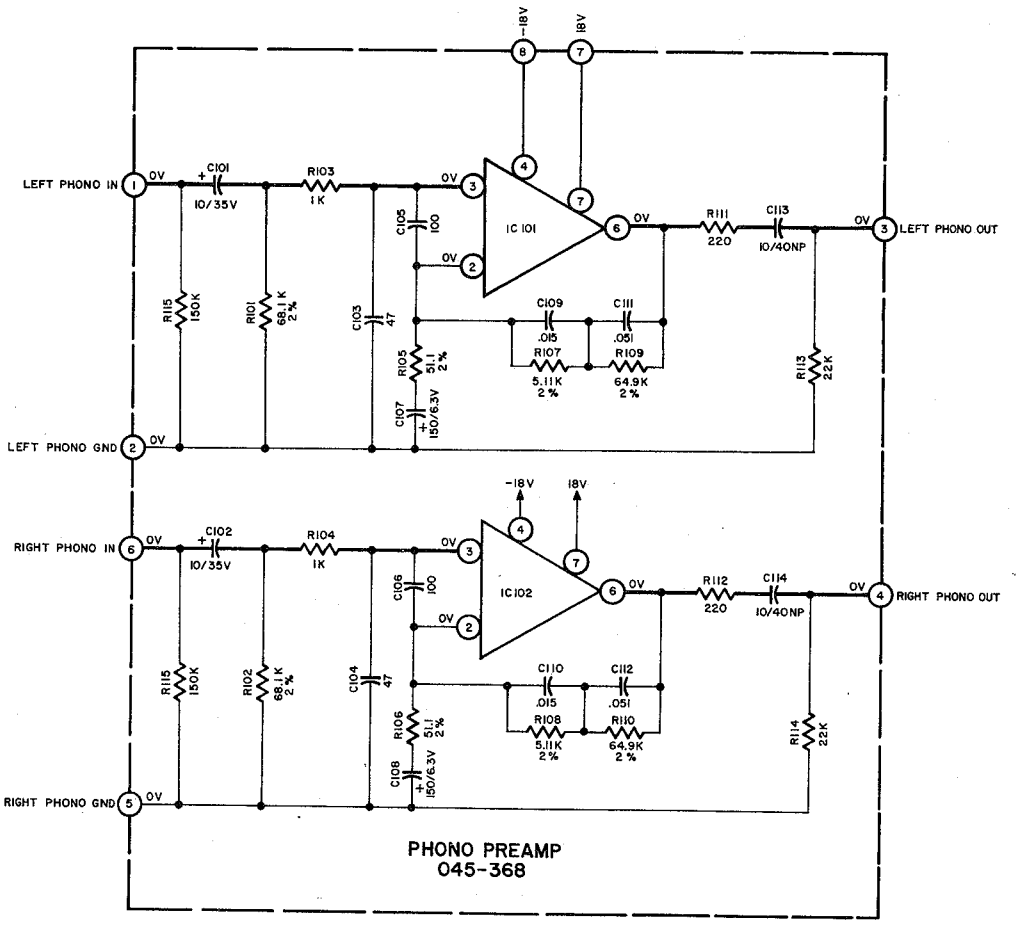
TOP–REAR
LOCATION OF TRANSISTORS NOT ON PC BOARDS

AA6200

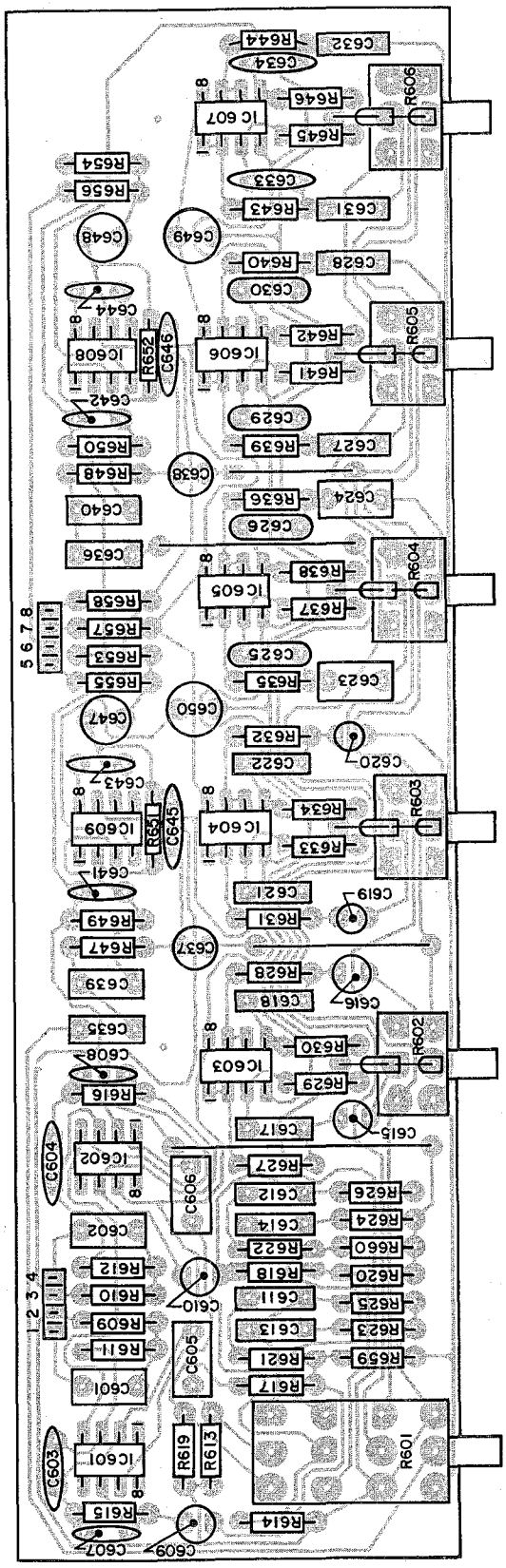


PHONO PREAMP PC BOARD
045-368

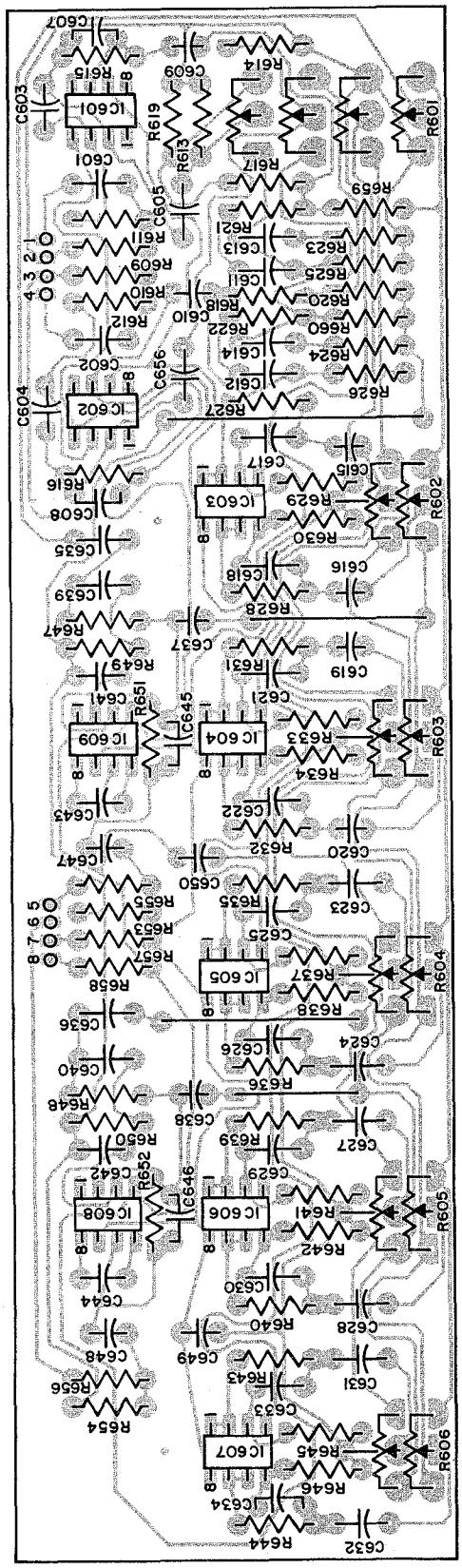


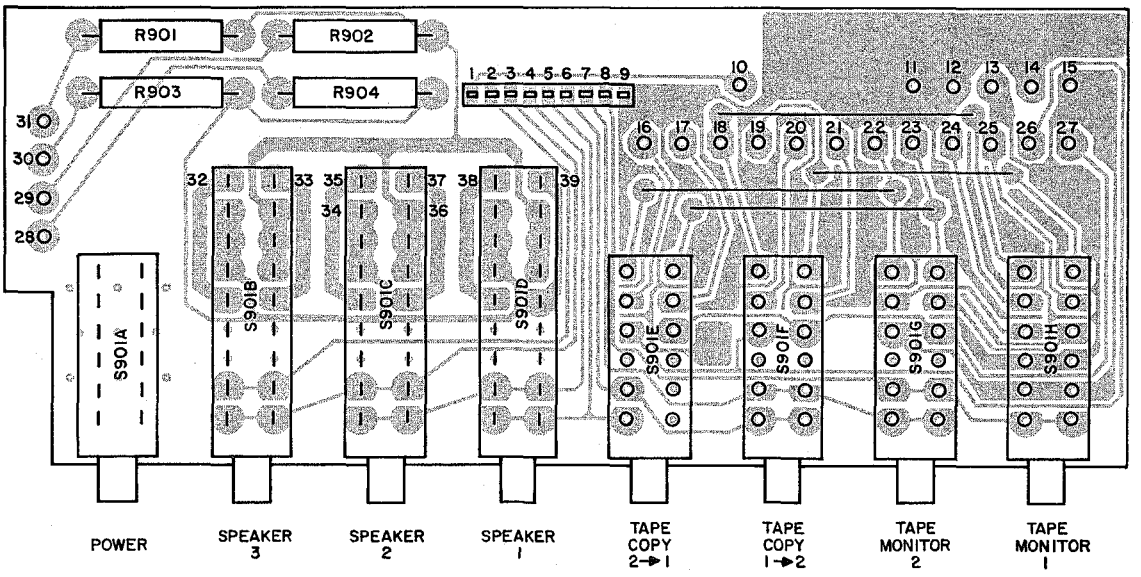

-18V
18V
LEFT PHONO IN
LEFT PHONO GND
LEFT PHONO OUT
RIGHT PHONO IN
RIGHT PHONO GND
RIGHT PHONO OUT
IC 101
IC 102
C101
10/35V
R103
1K
C105
100
C103
47
R115
150K
R101
68.1K
2%
R105
511
2%
C107
150/6.3V
C109
.015
C111
.051
R107
5.11K
2%
R109
64.9K
2%
R111
220
C113
10/40NP
R113
22K
C102
10/35V
R104
1K
C106
100
C104
47
R102
68.1K
2%
R106
511
2%
C108
150/6.3V
C110
.015
C112
.051
R108
5.11K
2%
R110
64.9K
2%
R112
220
C114
10/40NP
R114
22K
PHONO PREAMP
045-368

IA6200

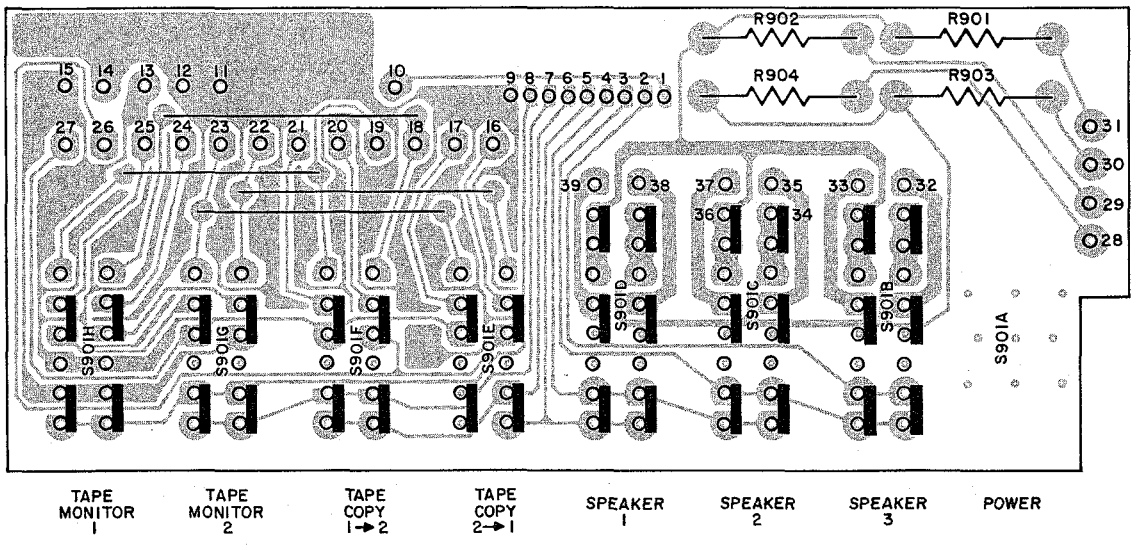


TONE/LOUDNESS/BALANCE PC BOARD
045-375

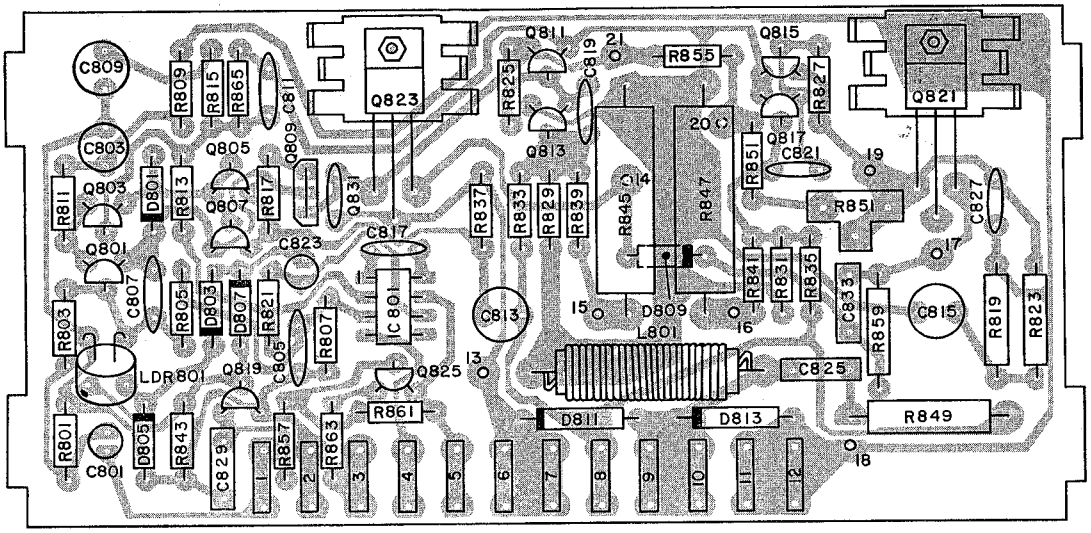




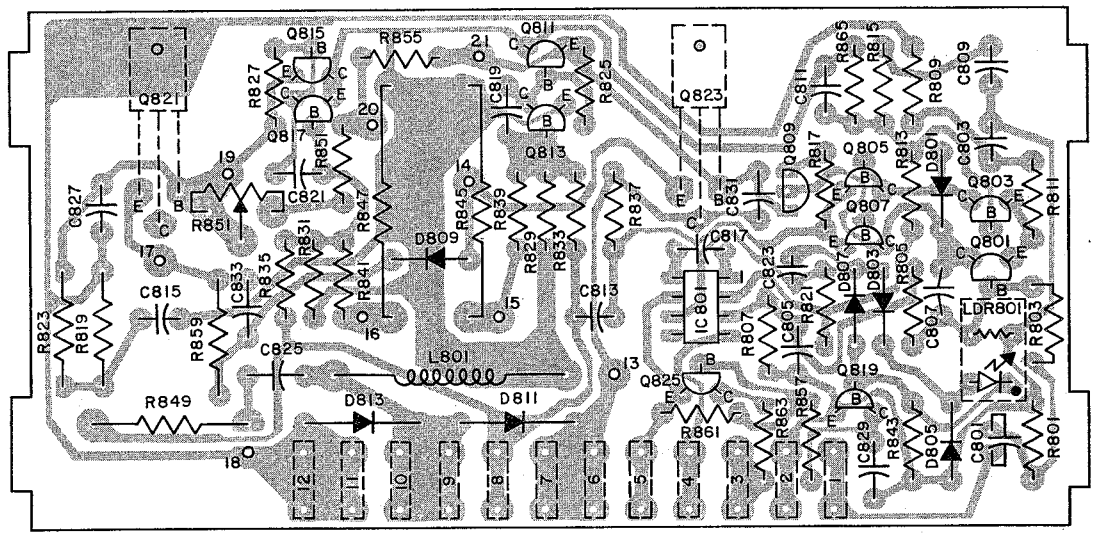
PUSHBUTTON PC BOARD
045-260

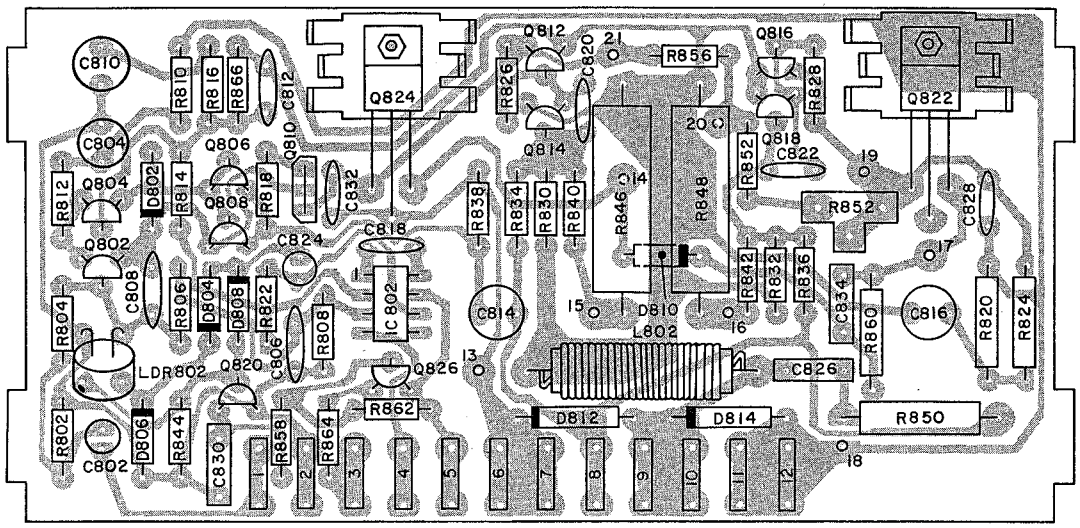


A6200

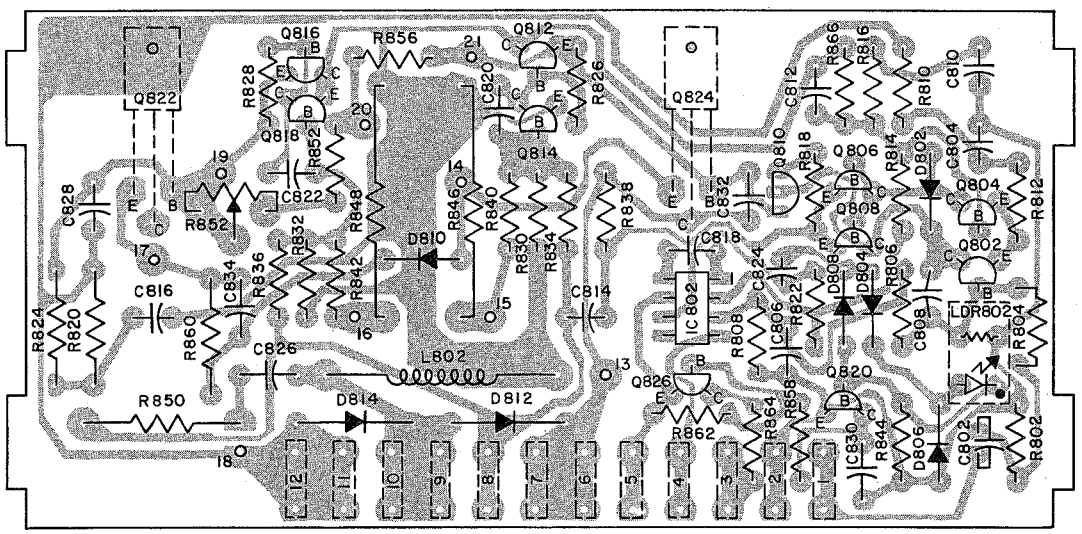


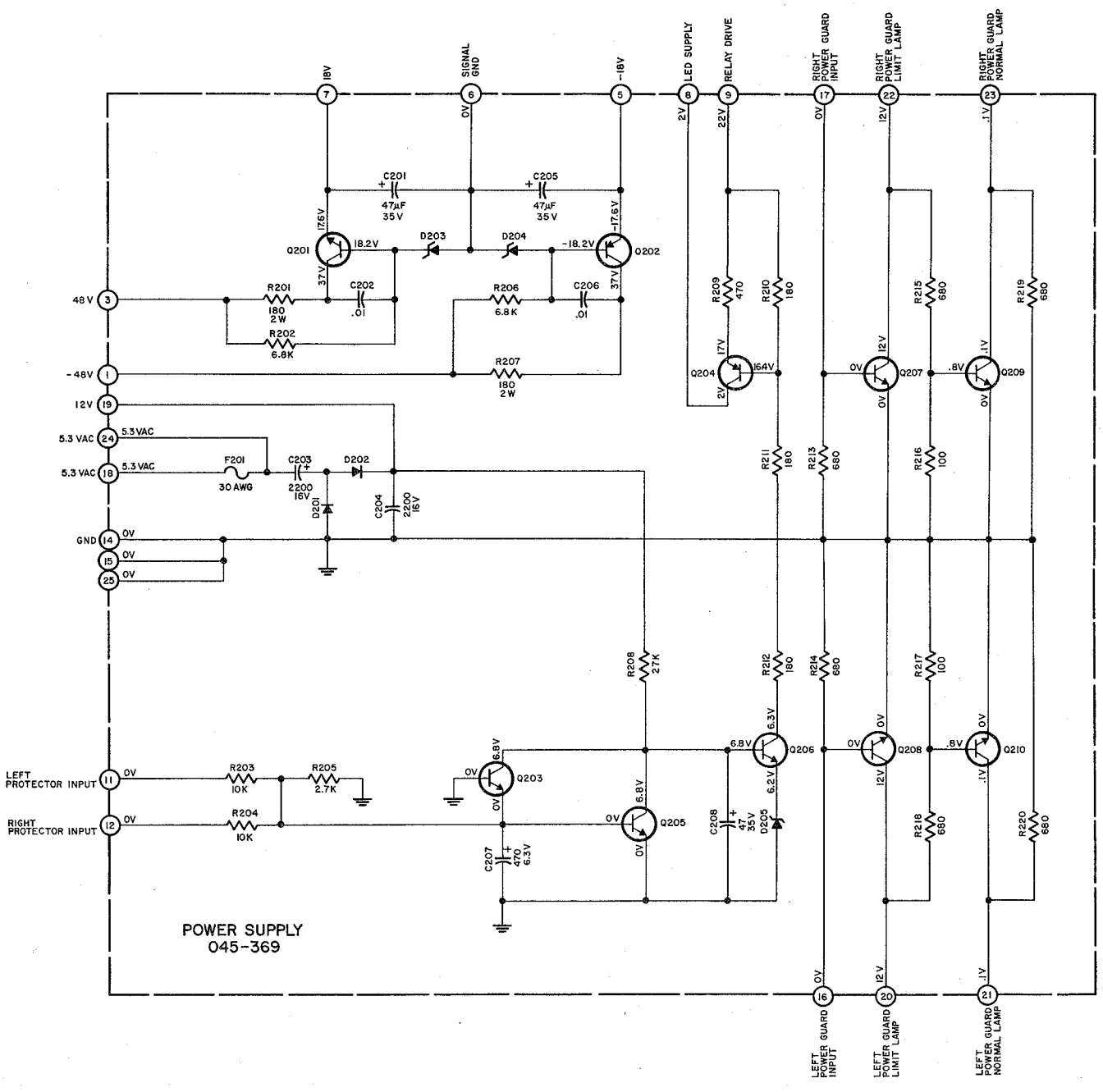
LEFT CHANNEL DRIVER
045219

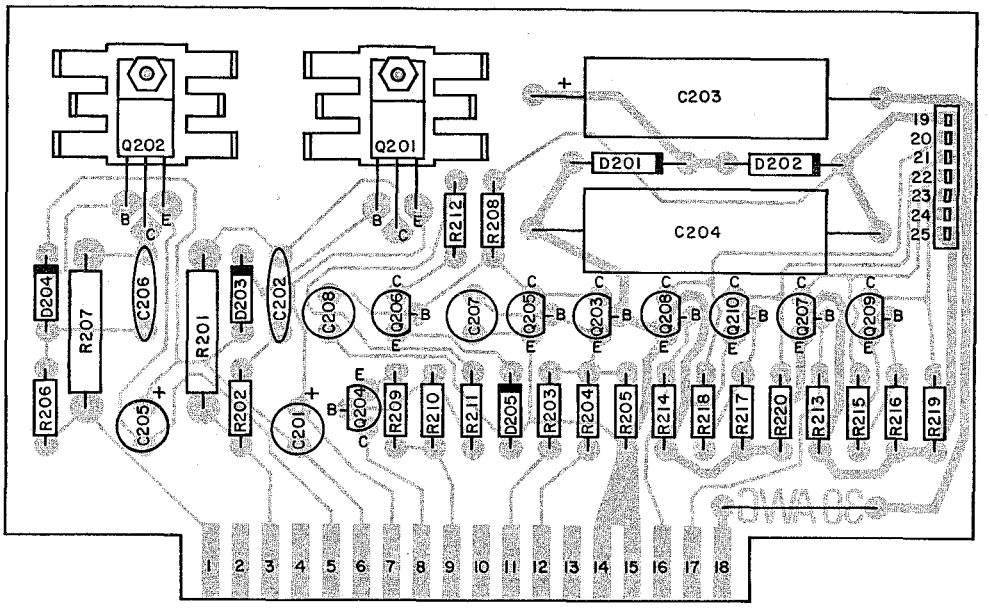




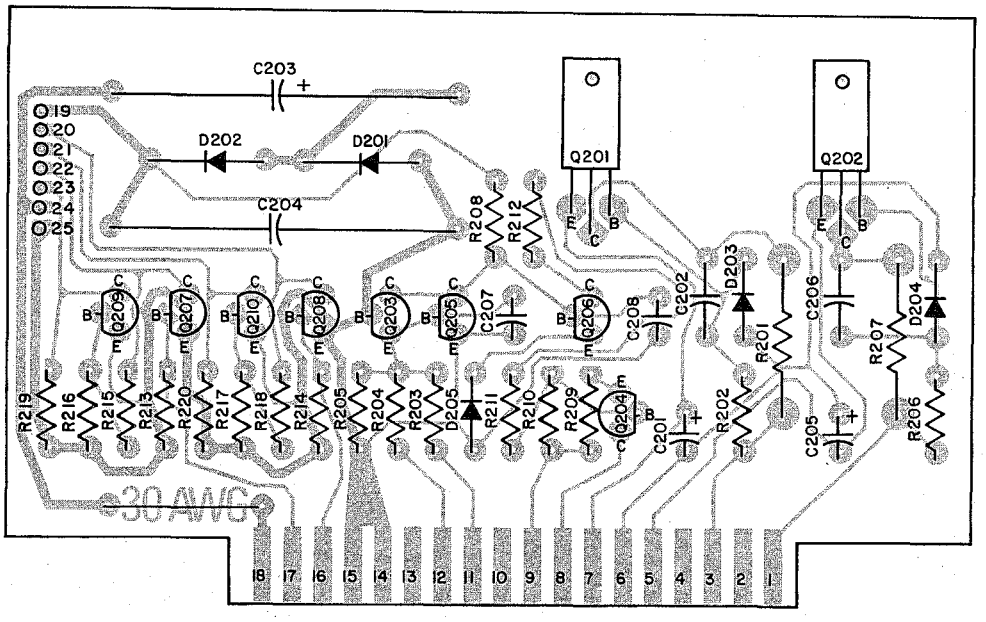
RIGHT CHANNEL DRIVER
045219



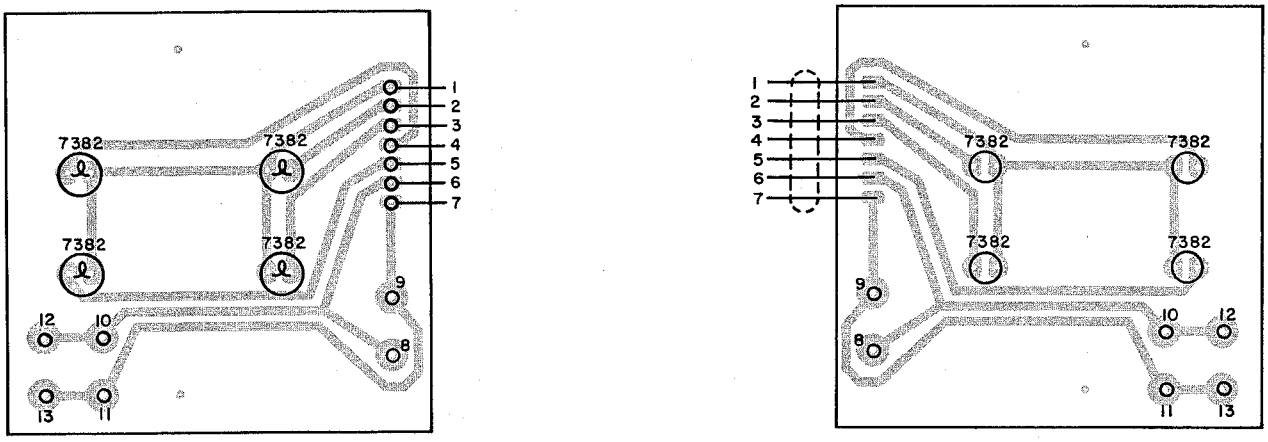

18V
SIGNAL GND
-18V
LED SUPPLY
RELAY DRIVE
RIGHT POWER GUARD INPUT
RIGHT POWER GUARD LIMIT LAMP
RIGHT POWER GUARD NORMAL LAMP
C201 47µF 35V
C205 47µF 35V
Q201
Q202
D203
D204
R201 180 2W
R202 6.8K
C202 .01
R206 6.8K
C206 .01
R207 180 2W
48 V
-48V
12V
5.3 VAC
F201 30 AWG
C203 2200 16V
D202
D201
C204 2200 16V
GND
R209 470
R210 180
Q204
R211 180
R213 680
R215 680
Q207
R216 100
R219 680
Q209
R208 27K
R212 180
R214 680
R217 100
Q206
Q208
Q210
R218 680
R220 680
LEFT PROTECTOR INPUT
RIGHT PROTECTOR INPUT
R203 10K
R204 10K
R205 2.7K
Q203
Q205
C207 470 6.3V
C208 47 35V
D205
POWER SUPPLY
045-369
LEFT POWER GUARD INPUT
LEFT POWER GUARD LIMIT LAMP
LEFT POWER GUARD NORMAL LAMP



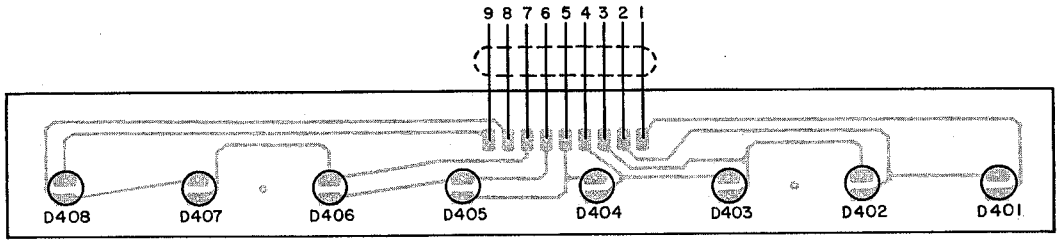
POWER SUPPLY PC BOARD
045-369



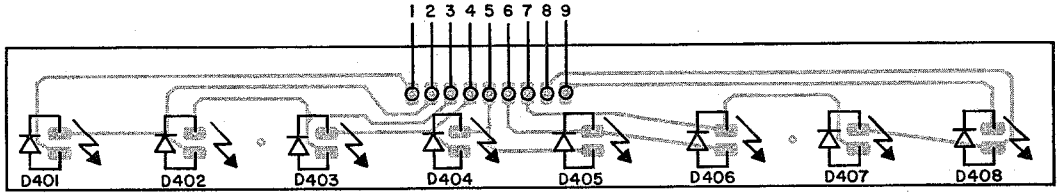
1A6200

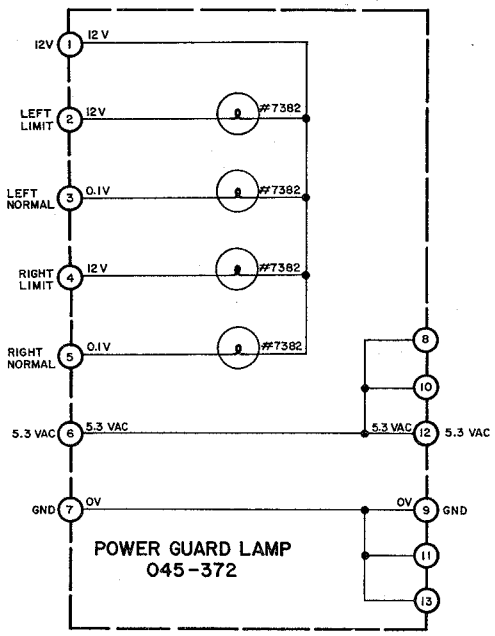


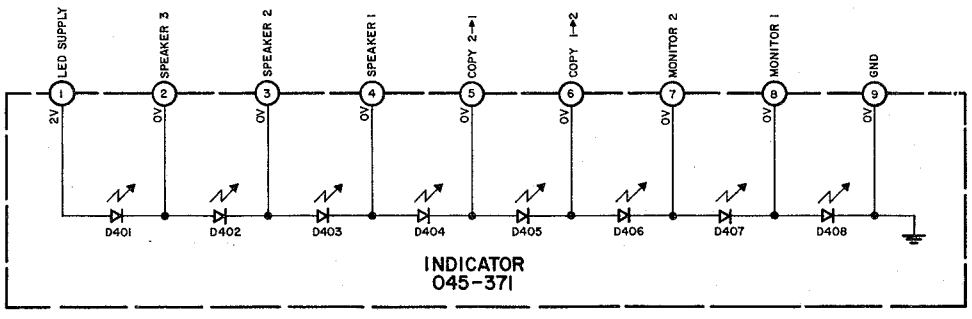
POWER GUARD LAMP PC BOARD
045-372

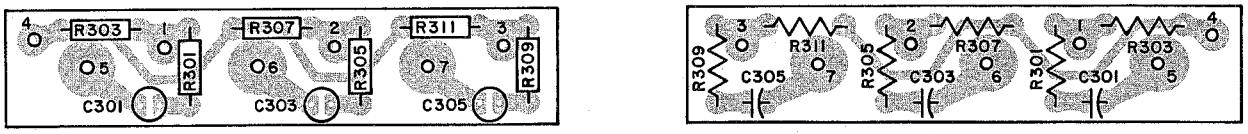


INDICATOR PC BOARD
045-371

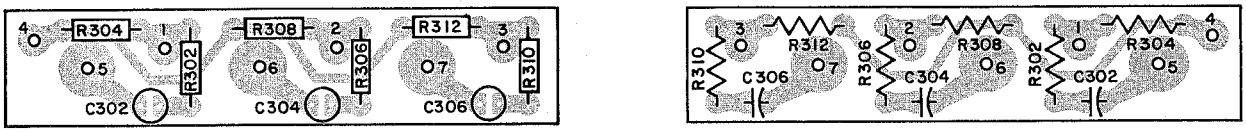



12V
1
12 V
LEFT LIMIT
2
12V
#7382
LEFT NORMAL
3
0.1V
#7382
RIGHT LIMIT
4
12 V
#7382
RIGHT NORMAL
5
0.1V
#7382
8
10
5.3 VAC
6
5.3 VAC
5.3 VAC
12
5.3 VAC
GND
7
0V
0V
9
GND
11
13
POWER GUARD LAMP
045-372

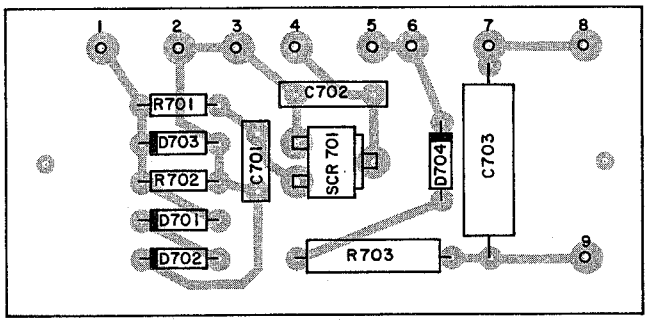

LED SUPPLY
SPEAKER 3
SPEAKER 2
SPEAKER 1
COPY 2→1
COPY 1→2
MONITOR 2
MONITOR 1
GND
1
2
3
4
5
6
7
8
9
2V
0V
D401
D402
D403
D404
D405
D406
D407
D408
INDICATOR
045-371



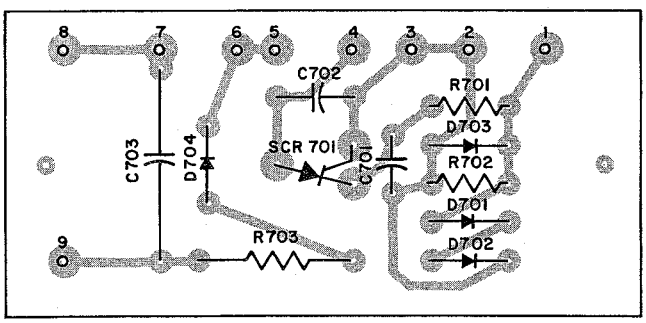
LEFT INPUT TERMINAL PC BOARD
045-373

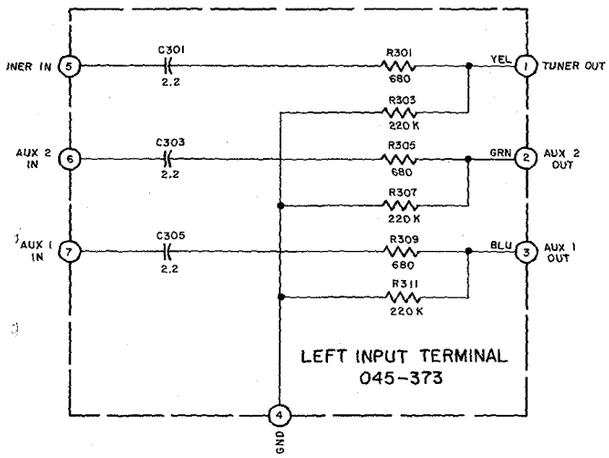


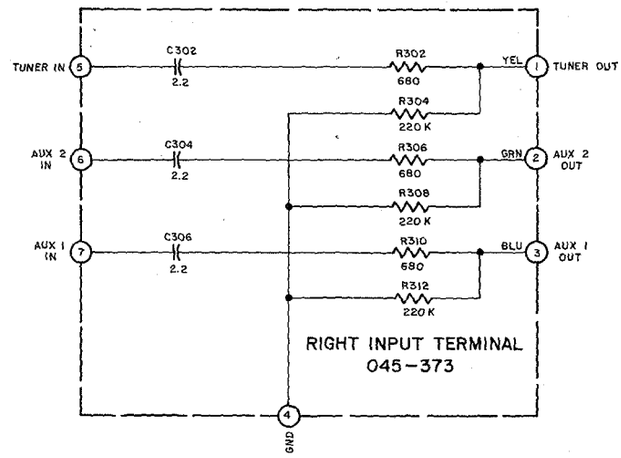
RIGHT INPUT TERMINAL PC BOARD
045-373

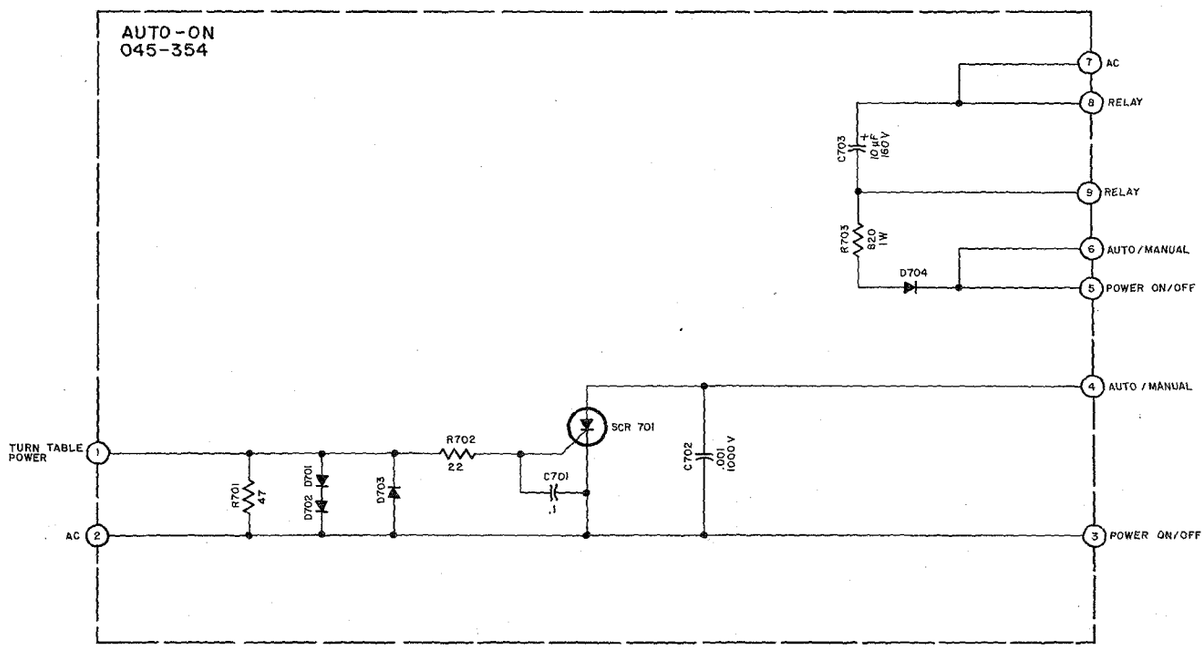


AUTO-ON PC BOARD
045-354




INER IN
5
C301
2.2
R301
680
YEL
1
TUNER OUT
R303
220K
AUX 2
IN
6
C303
2.2
R305
680
GRN
2
AUX 2
OUT
R307
220K
AUX 1
IN
7
C305
2.2
R309
680
BLU
3
AUX 1
OUT
R311
220K
LEFT INPUT TERMINAL
045-373
4
GND


TUNER IN
5
C302
2.2
R302
680
YEL
1
TUNER OUT
R304
220K
AUX 2
IN
6
C304
2.2
R306
680
GRN
2
AUX 2
OUT
R308
220K
AUX 1
IN
7
C306
2.2
R310
680
BLU
3
AUX 1
OUT
R312
220K
RIGHT INPUT TERMINAL
045-373
4
GND


AUTO-ON
045-354
7
AC
8
RELAY
C703
10uF
160V
9
RELAY
R703
820
1W
6
AUTO/MANUAL
D704
5
POWER ON/OFF
4
AUTO/MANUAL
SCR 701
TURN TABLE
POWER
1
R702
22
C702
.001
1000V
R701
47
D702
D701
D703
C701
.1
AC
2
3
POWER ON/OFF

REPLACEMENT PARTS

All parts not listed are common items obtainable from radio parts jobbers.

Replacement parts may be obtained when ordered by PART NUMBER from:

McIntosh Laboratory, Inc.
Customer Service Department
2 Chambers Street
Binghamton, New York 13903
(Telephone 607-723-3512)

Symbol Number	Description	Part Number
	DIODES	
D1	Si. signal diode	070-098
D2	Rectifier	
D201,202	Si signal diode	070-031
D203,204	Zener diode 18V	070-103
D205	Zener diode	070-085
D401,408	LED lamp	070-093
D701,702	Si. signal diode	070-031
D703	Si. signal diode	070-031
D704	Rectifier	070-059
SCR701	Rectifier	131-010
D801,802	Si. signal diode	070-047
D803,804	Si. signal diode	070-047
D805,806	Si. signal diode	070-047
D807,808	Si. signal diode	070-047
D809,810	Si. signal diode	070-098
D811,812	Si. rectifier	070-031
D813,814	Si. rectifier	070-031
	INTEGRATED CIRCUITS	
IC101,102	Integrated circuit	133-067
IC601,602	Integrated circuit	133-066
IC603,604	Integrated circuit	133-028
IC605,606	Integrated circuit	133-028
IC607	Integrated circuit	133-028
IC608,609	Integrated circuit	133-066
IC801,802	Integrated circuit	133-068
	TRANSISTORS	
Q1	Si. NPN Power transistor	132-188
Q2	Si. PNP Power transistor	132-189
Q3	Si. NPN Transistor	132-143
Q4	Si. NPN Power transistor	132-188
Q5	Si. PNP Power transistor	132-189
Q6	Si. NPN transistor	132-143
Q201	Si. NPN Power transistor	132-173
Q202	Si. PNP Power transistor	132-174
Q203	Si. NPN transistor	132-143
Q204	Si. PNP transistor	132-147
Q205	Si. NPN transistor	132-143
Q206	Si. NPN transistor	132-185
Q207,208	Si. NPN transistor	132-143
Q209,210	Si. NPN transistor	132-143
Q801,802	Si. NPN transistor	132-185
Q803,804	Si. NPN transistor	132-185
Q805,806	Si. PNP transistor	132-096
Q807,808	Si. PNP transistor	132-096
Q809,810	Si. PNP transistor	132-187
Q811,812	Si. PNP transistor	132-150
Q813,814	Si. NPN transistor	132-143
Q815,816	Si. NPN transistor	132-143
Q817,818	Si. PNP transistor	132-150
Q819,820	Si. NPN transistor	132-092
Q821,822	PNP Medium power	132-184
Q823,824	NPN Medium	132-183
Q825,826	PNP Darlington	132-182
	RESISTORS	
LDR801,802	LED Photo resistor	144-070
	SWITCHES	
S1	Input selector	146-193
S2	Mode Selector	146-196
S901	Pushbutton switch	150-030
	POTENTIOMETERS	
R3	Volume control	134-361
R601,607	Loudness/balance control	134-362
R602,603	Equalizer	134-316
R604,605	Equalizer	134-316
R606	Equalizer	134-316
	TRANSFORMERS	
T1	Power transformer	159-141
	FUSES	
F1	Fuse 1A	089-002
F2	Fuse 5A	089-014
	RELAYS	
K1	Relay DPDT	087-030
	CHOKES	
L801,802	Choke 1mH	122-188
	LAMPS	
	Power guard #7382	058-061
	Front panel #8610	058-069